Space Weather Forecast

Issued on Sunday, 12 December 2021 at 00:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor Geomagnetic Storming days 3 and 4 (14th-15th)

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity remained very low over the past 24 hours, with no significant X-ray flares recorded. There are no sunspots currently on the facing side of the sun. No Earth-directed Coronal Mass Ejections (CMEs) were evident in available imagery over the period.

Solar Wind / Geomagnetic Activity: The solar wind was at Background speeds, below 340 km/s throughout. The magnetic field carried by the wind was Moderate for a time though mostly weak as was the North-South component. Geomagnetic activity was mostly Quiet, with just one Unsettled period.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to stay very low in the period given the absence of Earth-sided sunspots.

Solar Wind / Geomagnetic Activity: There are no Earth-directed CMEs. Solar winds are forecast to be at Background until at least day 3 (14th). An enhancement is then likely from the fast wind of a significant coronal hole, with elevated solar winds possible. Geomagnetic activity is forecast to be Quiet with a chance of Unsettled on days 1 and 2 (12th-13th), but increasing to Unsettled to Active with a chance of G1/Minor storms later day 3 or day 4 (14th-15th).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	25	25
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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